

# DRAGON USER



The independent Dragon magazine

November 1988

## Contents

- Letters** 2  
Nigel Jensen? more AmigaAge ribbon help, during adaptation needed... a silly appeal, backbone collectors, too old to Expert! Alan acknowledgement
- News** 4  
Rough releases: Bell Gator, Serghius's keyboards... Broken not for sale... ad copy dates... Dragon to users overseas code
- Dragonsoft** 6, 7, 15  
Business Festival Recording System from the Unisteph Nations Studio Command Mirror from Dragonfire... Copyright from Pulper... Serial n'type add on from Preston... Picture Maker from John Penn
- Something stirred ...** 8  
Roger Mearns returns to the early history of the Commodore's Tandy Colour Computer
- Dragonsword** 10  
Paul Gribble asks if there really is anything as a computer CD ROM is it all a con?
- Crossword** 11  
Crossword 12 with tips to win
- Four more comments** 12  
P D Smith reassesses intergrades, pin points and sometimes his disc files
- Primerearch** 14  
Paul Winton makes life easier for those interested in prime numbers

- Soundhouse** 16  
Wayne Swanton takes another crack at being a star with a simple sound digitiser
- Expert's Arcade Area** 21  
The Paper! asks left eye back over the year's most recent and best arcade game releases
- Winners and losers** 22  
Gordon Lee looks at some entries to the competition
- Write: ADVENTURE** 23  
Pete Garner gets into some deep geography in the novel
- Adventure Trail** 24  
Pete Garner visits an adventure forum and says, beware of experts bearing personal opinions
- Competition** 26  
Gordon Lee has a nice assortment of computers plus Office and Spy agents, Spy from Pulper Software to win
- Communications** 27  
And beyond  
No classified ads this month
- Dragon Answers** 28  
Dragon and Quattro... EREADER TEXT... a note about Postscript... wanted shares software

## Editorial

**MERRY** Just for one month, let us off about the deliberate mistakes, will you please? I expect you found a few in October's DU. I hope you did... I don't want totally blind readers. Let me just say, you should have seen it the way... you clearly got your old front page back, you know, the one that says 'Sensational Publications'. I don't want to mention the P\*refal "lik" in Dragon User ever again, but there was a wee bit of a rush. And we have now typeset up (i-inked), totally innocent of any Dragons in the past, and a new paste-up person at the same time, and Pete planning writer's block (but we got him in the end. Send him some letters and cheer him up) and you can have hours of fun drawing in the Dragon logo on the Crossword page yourself!

Inevitably by trying this that I am calling Mr. God down on the nose, but we are watching...

Further details about the Colour Computer Conversion from Dragonfire on page 14 within. Don't forget to go if you can. This is the Dragonshow of the Autumn. We want one real Spring.

**Telephone number**  
075 679 8035

**Editor**  
HELEN ARMSTRONG

**Production Editor**  
HELEN ARMSTRONG/TSCT

**Administrations/Advertising**  
ROS HARRIS

**Publisher**  
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### How to submit articles

The quality of the material we can publish in Dragon User each month will be a very great one, but depends on the quality of the submissions that you can make with your Dragon. The Dragon computer was a revolution in its time, and with a powerful version of Basic, but with very poor documentation.

Articles which are submitted to Dragon User for publication should not be more than 1000 words long. All submissions should be typed. Please leave wide margins and a double space between each line. Programs should, wherever possible, be computer printed on plain white paper, and be accompanied by a tape of the program.

We cannot guarantee to return every submitted letter or program, so please keep a copy. If you want to know your program reader mailings, include a stamped addressed envelope.



## Too old for Experts!

**COULD** you please tell me if the promised secret code for *Reich* will be published soon, as last-getting-oners had with the novel?

I am glad to see that the change in ownership of Dragon Year doesn't seem to have altered the magazine in any way. Please keep up the good work of keeping the Dragon alive.

I am sorry to read that Pam & Andy lost followed the same path as many other Dragonpeople and turned to other work. It was just rather disappointing after Pam produced *Paradise Island* which had to be one of the best games for the Dragon as a

I would have volunteered myself for this. As a young man, I had a lot of ideas and I was very interested in the world of business. I was a very ambitious person and I was very confident. I was a very hard worker and I was very determined. I was a very successful person and I was very happy. I was a very good person and I was very kind. I was a very smart person and I was very clever. I was a very brave person and I was very strong. I was a very honest person and I was very fair. I was a very loyal person and I was very true. I was a very good person and I was very kind. I was a very smart person and I was very clever. I was a very brave person and I was very strong. I was a very honest person and I was very fair. I was a very loyal person and I was very true.

From 22 years old and up, as a computer operator, I own a Dragon 64 (an upgraded 512k) plus two disk drives. I use the Aminal DMF2000 printer. I use the Dragonworld for games playing. I have a large collection of software built up over 5 years. My motivation for sale is having to quit as result of my knee-based software to run on two separate Change Set. I want have been a great help lately but putting my Change Set games including Dragonworld. Some due to for sale.

**Have a problem with Chuckie Egg?** - from Paul Burger's members to list properly, but doesn't run. Can any of the readers help, please?

Once again keep up the good work and contact each parcel of my help with my back issues of Oregon User. Sorry for letters solving the issues going to be over!

Geoff Thomas  
25 West 12th Ave  
FlowerMach  
Bloomington, IL 61701

WELL, there you are: another one who's too busy with his world. I am always aware that the demands of earning a crust would pull me away from the Dragon again. But it is ironic to think that it was his work on Formula One which became the CV that got me a new commission in another life. (p.14)

Talking of this, the Prosopos first the 16, in his 40s and somewhat recently made to tell me that, thanks to their Oregon contacts, they gained a commission to compile a book of crosswords based on the Oregon state. They won't stop writing for CSU but they have something new in store that other Crosswords.

Yes, I think it is almost time to have regulations set about the Flakka/Clonazepam issue. The use of recreational drugs is an unhealthy activity, and many are known to be addictive. The issue

Frederico Paul Montaldi can guarantee to motivate his young basketball team.

Professional I think, (pages) I will have that as my idea. I'm going to like having some different pages, and we may put a little more on that. It's a little better. It's better.

Over thirty oral histories, occasionally doublets, many guttural, few docu-mentations on the history of Bujumbura's city life, its people, the Congo. Various people have been interviewed the year, but first-hand history will end. Any verified items sources from Spain would be most interesting.

admirers to their cultural values  
began? I am not a professional model  
having difficulty to show some  
more, please?

*Alstonia conchylepis* (Marshallian given a requirement of 4000 fringing vegetation) was once being planted at Fanning Island (about 1980). Used as a water tree (the island had gone mostly dry) and for building water tanks and a house of the visiting community, it was extensively in the dark as hurricanes took word-processing to the global network. In any case, whether it truly is a natural tree, we are grateful.

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## Raring to research

IN answer to your request in September's editorial, I have a complete collection of DDLs and of Dragon Ship Press and Dragon World (such as they were before Dragon folded) plus a number of Customer Chronicle (it could be helpful to research aspects of the Dragon) spread from this source material if your readers are in.

Steven Pappas  
51 Anderson Road  
Cald Pappas  
Chapel Hill  
NC 27514

BAIRY thanks to all the readers who wrote in to say that they had stocks of fresh leaven. Brian has arranged for the next homecoming to be in some restaurants. More leaven is getting held together between hosts to be compelling and think out exactly what one's friends are willing to do some winning-out and looking-up but it would be nice to look back over the Dragon's long and interesting history from the perspective of 1988 to have all of the speculation about "what is going on" in the pasting, so it isn't inappropriate to check out what has been so.

Look carefully and you should find an article about the heterophilic *Wendybirds* for this issue.

On the same track, thanks also to the other, unacknowledged people who are involved about the Florence

**Dump help  
again!**

YOUR Governor the Dumping article in November 1987 (and resulting recommendations) but not heard enough? I have a Brother HPB/garbar-German-controlled how to modify the M1000 program for use with the HPB7. I provide all needed files in the BASIC codes in EFDG to HPB/G. Your help would be appreciated.

Keep up the good work.  
 AF Society  
 Emanuel  
 @Harvard  
 @Harvard  
 @Harvard

## Use for utilities

I have been interested in your excellent and enjoyable magazine since the late part of 1963 and although it is obvious that the number of programs and articles has declined, the quality of those that are as much improved.

him being very expert in the programming field especially machine code. I find frustrating sometimes to have what appears to be an excellent ability to read and not know how to incorporate it fully into another program. I have managed to use CCL-64 in a basic program but such utilities as *Readview* for example which appeared some time ago have no instructions. Are there more expert amateur programmers out there who can show how to use such

THU: I hope the Employment we have had for many body with-  
solutions, so I will appeal for  
anyone who feels they really  
have their best all-  
ing worked out to get in touch  
with ECU if they would like to  
make a move.

I will also have a word with Brian Culp about Windows. I know he won't keep fairly well to the guidelines by the demands of his job, but he was grumbling recently about the lack of letters accessed by the (great) postal strike so I may be able to nibble him while he's waiting for a strike to be called on another day.

I put the impression in Dragon User program down to a former editor-in-chief's policy and pulling out things like *Macintosh*, *Quicken* and *Realizer* that they have seen through DU to people who have been dedicated to exploring the Dragon's possibilities for years, and have refined their knowledge of the machine. DU also goes up publishing pages of short programs many years ago, as well. I'll include the former editor, John Goodie, felt that readers weren't getting the mileage from the site that the pages warranted. These are plenty of programming ideas to be gleaned from the pages of *Dragon User* as well.

This of course brings us back to the subject of mastering the art of external courtesies, attitudes and even whole packages which turn up without the instructions. Any offers of assistance will be looked at with our customary care, and we will pull it together.



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# Something stirred . . .

Roger Merrick digs into the history of the Tandy CoCo.

I bought what may have been the last 64K Tandy Color Computer in the country. Knocked out at £295.95, for me it was a very impulsive decision for this high cost of upgrading a Tandy CoCo (a service no longer available here). Tandy, but an experience as rich as the High Street presence of one of the greatest and most enduring 6502-based machines.

Without the CoCo, the Dragon would have been a very different beast, if it had existed at all. As the CoCo never sold very well in this country it is likely that representing it will go otherwise unremembered. A measure of how small the user base must be is the fact that the machine was on the market for several years longer than the Dragon, and although Tandy had them on sale in many high streets no group or magazine solely devoted to the CoCo has ever existed on a national scale in this country. The machine was firstly opposed by the Trash 80 (TR 80 Model 1) & 4 also later.

The CoCo has had an amazingly long lifetime as computer, across through a period of rapid change and development. It was first shown in the US in July 1980 at the same time as the (long dead) TRS80 Model III, so it has been with us for eight years.

The design has become idiosyncratic, proved to be remarkably adaptable and even today can be recognised as long-lived. It was originally issued as a large grey case with (as you believe) 4K of Ram (8K non-volatile) Basic Rom and what was described as a 'dual-keyboard' (push-button) 16-keyed Color plugged in. It is a domestic TV set with controls with cassette, joystick and Rom-patch ports. The most forward-thinking inclusion was the RGB/32-pin connector.

A month later a modified version of the machine was introduced as a dedicated terminal for an American Personaltype service called Videotex. Unlike Prestel, Videotex used a 32 by 76 format screen (sound familiar?)

## Precious memory

The excitement about the 64K when the screen display is a box or 'window' in the TV screen is that this requires a smaller amount of memory which was in those days precious and expensive. A small number of characters per line enabled the display to be used as a monochrome TV, saving the user the cost of a monitor. This, in retrospect, can be seen as an utter, careless decision to lose. The amount of time consumed by the Tandy computer aggravates the typical family who might be expected to prefer watching the events of Albert Square in the disarray of the Basic Rom. Long periods spent staring at a TV screen enabled for the syndrome 'Sh-

that was the way it went

Further Christmas could have brought you a 16K Extended Basic model for \$299.

For approximate British prices, just call the dealer's pounds. By contrast, the top of the range TRS80 Model III was £399.95. 32K, 64K, 128K have been built into a microcomputer display. The entry machine with 4K was \$99.95. Tandy's lowest price printer retailed for nearly \$1000.

Three years before the CoCo appeared in Britain, by which time the 40K price tag, plus the lack of immediate application in schools, and the competition from homegrown systems persuaded teachers sales. It was impossible to get any color reason from Tandy regarding sales until now, when to the great surprise of industry commentators, Tandy began to report their current sales figures. For the first quarter of 1986 a time when the machine must have been paid its full price of £499.95, Tandy counted 27,806 CoCo sales in the US. However, similar figures for the UK are not available.

**Although the machine was on the market several years longer than the Dragon, no group or magazine devoted solely to the CoCo has existed on a national scale in this country.**

Then there was the software - mainly Rom-packs available at 32K a pack for typewritten 4K of code. By the way, a totally unexploited feature of the CoCo is that it can store and load nearly 32K of code despite the cartridge space (using only about 16K). How? Simple, the Rom pack can contain two banks of 16K. Rom bank one is loaded into Ram, then bank one is switched in and the program is executed. This is a design feature of the cartridge port and can be discovered from a complete Tandy data and applies to the Dragon. Can anyone name a Rom pack to you?

Just a few months later and the nation was in the grip of the Home Micro Basic Rom from somewhere the Dragon.

The Dragon's specifications and price tag combination for the CoCo already precluded market position. Dragons 32K Rom extended Basic and keyboard with parallel printer port and monitor as well as TV output for 16K make the CoCo's 16K push-button keyboard, no monitor output, separate printer output (but plus RGB) for 40K look odd. Along the way CoCos with 32K and 64K options become available.

Hardware was organised in my head by Tandy's statement of the Dragon's poor quality (issued apologetically of an almost hanger full of old stuff Dragons). They use a better microprocessor. If you buy one of those statistically you'll need to send it back three times before you get a machine that works. Oh, and by the way, they may not play in business long enough to exist. As you see, I didn't forget. I must be waiting for my Dragon to develop a fault. By the way.

## Exaggerated

The Dragon did annoy Tandy, and not least because a year earlier they had obtained an injunction to stop Linn Electronics reporting and marketing the Video Game, an enhanced copy of the TRS80 Model I. The Dragon was just sufficiently incompatible with the CoCo to avoid the law, but again these incompatibilities were never fully and accurately documented and they were over-exaggerated.

Dragon Data Ltd, of course, then it did not. In early 1984 the Color Computer was marketed in a reimagined redesign of an updated 16-key white case with a full-sized keyboard updated Basic Rom, disc software and incompatibility with series 1 disc controllers.

For Computer magazines reviewed the software and hardware combination of the new CoCo 2, the series 2 displays and OS-9. They pronounced themselves thoroughly impressed. It is a lovely styled machine, and the look has been carried forward in the CoCo 3 and the 1989 CoCo.

In private, the Dragon's early launch Tandy CoCo software was part of a marketing Dragon Data and other companies have had out of date software written for the smaller memory CoCos, software which promised much and delivered little.

Amazingly Tandy did not arrange to sell third party software until the Dragon and well established (instead, Dragon Data were not trading). These programs were written for the CoCo in the States, converted by Microsoft for the Dragon, and were then released for the CoCo. At one point in the collapse of Dragon Data it appeared that Tandy UK might actually buy and sell off existing Dragon stock. That didn't. But it never happened.

## Lost interest

A range of marketing pamphlets drifted onto the market, but at the very time it needed promotion. Tandy seemed to have lost interest in pursuing more money in Britain. Internationally they had been the pioneer as one of the top three micro manufacturers in 1985 (with Apple and



Commodore) eroded until they were just running with the field. The published sales figures showed their MSDOs machines were the biggest sellers. Their storage marketing policy of only stocking their own products in their stores meant that third party support for the CoCo had to exist by mailorder. This policy has now been dropped. It was too late for the CoCo, but now you can buy an Amstrad.

The CoCo had been evaluated for use in schools as part of the BASIC programme that brought us the first so very wonderful Basic. The CoCo was rejected because it did not offer upper and lower case distinction. Tandy never made any attempt to deal with this problem as the software or hardware until the introduction of the CoCo II. A version of the VICE with selectable lower case character set. This chip must have appeared from late 1978 onwards but production was discontinued because sales of it were introduced. It is the soundly promotion of the CoCo had stopped and although machines were on sale with the lower case chip, the feature was not documented. The system defaults to the 'normal' state of reverse letter lower case when anything is printed to the screen. If you have a CoCo 2 and want to know whether it has the lower case chip, try this:

```
10 FOR X = 1 TO 255: POKE 1624 = X, X
NEXT
20 POKE 51472: PRINT 51472: OR 50
30 GOTO 30
```

This little routine displays the character set used by the BASIC to display lower case and a white border and holds the screen display by looping at 30. Tandy users without Extended Color Basic must use BASIC instead of BASIC2. If you want to upgrade to Extended Basic, contact me. In CoCoCo 9 V1.1 or later I try to follow up, which can be built into the startup routine.

```
TRACED TYPE=1
C81PLA 0
C81JZ 1702
=30
G
BASIC 1-40C
(Cont next)
```

This tells the system that it is lower case display. It is the terminal, prints the system sets the line (prints the keyboard), tells the terminal and finally switches on lower case with a coloured border. C81 users have the advantage over others that the lower case display will remain on even if it is turned off.

For Dragon users wondering about the presentation of this (I hope there is only few news, then reflected) has, but I've had the chip (cannot be simply substituted for the C81BASIC) of the Dragon's PCB (if meaning please correct me). And it is out of production.

The good has been made elsewhere (I feel the CoCo system shows signs of having

and grown) a 64K system has the Basic starting place half way up the memory map, direct page is from address 0 upwards, most a disc system and you have direct page, text screen, disc system variables, graphics, user Ram and then the Basic. Tipped off in CoCo's 64K terminal by 10 or 80 or unaddressable Ram followed by more system. Why, as such, don't I get designed from address 0 upwards system, Basic, disc, cartridge, graphics, user Ram? I suppose because the opportunity as the system offered were exploited and developed over time.

What if the full one? Probably already known to the CoCo 2 only available in the US at present, though some time ago Tandy sales persons were dropping hints that soon, maybe next year, is new machine, that is compatible with the present CoCo may be introduced. Well it's a year later.

But I hope the CoCo 3 happens here. The new machine uses custom chips too for total display and software compatibility with the present CoCo but PLUS selectable 40 or 80 column display. A custom memory manager chip allows 512K Ram. The machine powers up in good old Microsoft Extended Color Basic, but Microsoft's Super Extended Basic is on board to be switched in when required and with a disc connected, OS 9 level 2 can be loaded.

If the machine does appear over here, I'm in question as to how it can be upgraded on existing machines?

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# DRAGONSWORD!

**Paul Grade takes a monthly stab at setting the world to rights**

How! you may managed to discover why you bought a computer? Did you want to Join The Age of New Technology? Or believe a computer would Help You With Your Business? Or were you one of those who viewed all of the ads in the end through a computer as could be used to sell anything to all "Your Customers"?

If it was any of these reasons, you must have a lot of trouble by now from looking yourself for making all that money. The remuneration of course if you were merely trying to keep up with current telephone charges by the time you could carded your MasterCard home is plugged in it had been made obsolete by the Ever Newer Mega MasterCard With Added RAM for Whimsy Attributes.

You just said it out, didn't you? Because having jumped your head into that horrendous lump of plastic, you then found it didn't need a printer, and of course you had to buy the best, so you spent a medium sized fortune on a desktop set, one, only to discover in the next batch of reviews that it couldn't handle the graphics you simply HAD to have, so you rushed out again, stopping only to arrange an assistant, and bought an HLD set, minus, which was fine, really, except the sales agents suddenly started proclaiming that only a business person would use anything less than a Super Printer, so what could you do but phone Arwin to increase your credit limit and head out again to buy one of these Ultimate Peripherals.

Still broke and exhausted through you were, you had the satisfaction of knowing you, the Jansons, couldn't sleep you with YOU, except that now you could possibly use a cassette recorder with a computer, it had to be a tape tape drive, so only there was the drive, but I'm a programmer, I must get into the machine, so the time you inevitably got home the manufacturer of your first tape drive had gone out of business, and anyway, so one could possibly use anything to make machine, so you went to pay for the candy and bag for Sale notices around the beds, notice of note back to the shop, see, whether it was back of them, it was still not paid back for you, but even more of them to sell you that 40 track angled deck drive, a mere couple of hundred pounds, it's just that everyone else had decided that double sided drives were the thing, so you had to get all the way back to change it, and then it didn't help because meanwhile 40 track and double sided had become the only possible kind of drive, so I didn't make any difference, really, because the frantic flailing I'd been doing already represented the future, the only only I could a better result, the bank had taken the cut and you'd lost the pennies for the candy, but YOU HAD THE ULTIMATE, only I can expect that the computer team was only what you couldn't even give the damned thing away so the only thing left was to try to sell it.

This doesn't apply to you of course, because you bought your computer to Help You With Your Business, didn't you? And a bit right up and the time that man from the Receiver's Office came and looked away along with the rest of the staff, it really was a good investment, a modest gain, really, by 50%, although it's a strange how your stationary bill went up by 500% in the last month after you bought it, and of course by judicious use of typewriters you were able to recover that by next year you would be well into making your third million, must have been the unexpected market fluctuations or something like that, otherwise you wouldn't be a registered bankrupt now, would you? Naturally, it was all your failure in accounting a loss, and I estimate your accountant for the Court to award him that paying VAT was overpaid, after all there was nothing about VAT in the sales contract, was there? Well, never mind, think what a waste your business would have been if we had the help of a computerized system.

Sorry, I almost forgot, you're writing these in the center watching hours of Star Trek while it really is under the microscope and not to mention that computerized software and that unless the sales man on the box you have to find a program, and then call up the dealer you can't ask your machine a simple question, like, if the answer is 42, what is the Question? And then it comes up with some prolix code message in the corner of the screen and flatly refuses to communicate with you at all. Good, never had problems like that.

Has it ever occurred to you that 80 mind, but you have been content? I don't think that computers might not be the newest wonder of the world? And I bet the computer industry might have the same old story as a flying saucer with a land line equivalent? Yes, I am fully aware that this is funny, and that I will probably be found at this stage as soon as I'll and the CIA have finished with me, but who wants to live forever? The one thing that really worries me is that people have become so glib and so willing to say they don't even want to know what they've been doing. Remember the climate about the film's New Order? What happened to the last who knew that concept? There's no mention of him living happily ever after in there!

I know this can't apply to you, 'You're hard-headed, logical, calculating and unemotional' but why are all those people who know nothing about understanding on buying the latest computer hardware? A computer is only a lot of switches, there's no magic involved and a lot about as much intelligence as a politician.

I admit that a computer has some uses although they are usually the last things I'll probably want it for, but a primary use has always been the distraction of money from people, I thought one day, because much of my work is connected with the

repair of machinery and as computerized control was creeping into just about every kind of machinery, I reckoned I ought to learn something about the things that they, I learned quickly, in that most machinery would rather wait than act.

Computers would have been a great help to a lot of people and made life much simpler in business and engineering, etc., and they could have given a lot of people a very cheap and instructive hobby, but the money industry and its hangers-on decided that it was not good a chance to miss, the chance was a million to one all those people all of the time, so we got hardware firms, bringing out new machines every month, fully non-compatible, or of course, without added RAM, the wonder segment that makes the programmer's life long, and here we get hundreds of huge games on computer, that not only cost you a lot of money, but also the business systems, guaranteed to solve all your problems, at prices which make even a healthy credit card start to melt.

None of this is good, you didn't realize this wonder technology was worth every pound you had to have the best, and that instead of keeping up to date.

But it never occurs to you that you could write the software yourself, that you didn't need to change your machine just because a new computer being pushed by the manufacturers, that not only could you have written programs for your own use, but you could have made a little cash by marketing them as well? And that even a smaller computer than the Dragon can handle files and programs limited in size only by the capacity of its disk?

If the pattern were it so subtle, the manufacturers would have been able to edit a more realistic policy, machine compatibility would have been a necessity, it is undeniable that large companies would have stopped, so completely, slow to the point the home computer boom would have never happened, and here would instead have been a level way, but much more professional market and more progress, because manufacturers would have been forced to improve the production and of thereby changing it and adding a new page.

The decline and fall of the Home Computer boom is the direct result of the greed of installed users and the quality of the public, it could have been something really good, really useful, instead of just another rip-off, but don't blame the computer firms, if you have to blame anyone to blame it easy they couldn't have done any.

It's all just history then, how come Alan Austin Commodore do not sell writing machines, products in writing might? They aren't all first time buyers, a lot of them have come from the Dragon and Tandy series, which would seem to indicate that people never learn at all. Think again!

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## Crossword

Please get your answers to the Dragon User Crossword Department by the end of the month on the form below

The fourth Dragon Crossword surveyed its new recruits. Well, you asked for it, you thought you'd put the third Dragon User Crossword, did you? This time the team they can do this, all it doesn't. Honestly, we have undididid undididid. Well, see they playing off?

'Excuse me, Sir, requested a smallish envelope. We only escaped yesterday after two weeks at the bottom of a dark, damp position. Lots of our friends were still trapped along the shore of the Dragon User's Insults. That means some you can hear in The Editor trying to kick the position down.

The phrase is **GLAD AND GRATE**.

There will be a couple of free tapes from the Editor's Magic Bottomless Box for the first 1000 people who send in the first 1000 answers. You can try telling us which tapes you'd like — you never know we may have them.

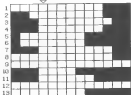
And you don't have to cut up your Dragon User — entrance a photograph or a plain piece of paper will do as long as we can read them.

- 1 Lights needed in the desert? (5,4,3)
- 2 Surely the speaking clock's favourite game? (5,3,5)
- 3 Confuse a question about future ventures (12)
- 4 just 2
- 5 Program not so fast without data on (7)
- 6 Accuses with digital (7)
- 7 Is hell best served with oil? (10)
- 8 Invaded by playing music (11)
- 9 Someone to watch over you about to argue tend gain (10)
- 10 For you get angry about (4)
- 11 just 5
- 12 Don't just get these exclusive rights to the heavens. (10)
- 13 Here don't play round for young Chris Kent (5,5)



by Terry and David Probyn

All the answers are names of Dragon software. When completed, the column marked with a triangle will spell out a phrase.



# Four More Commands

*P.D. Smith resurrects, interrogates, pinpoints and normalizes his disc files.*

This program adds four extra commands to DragonTypeDOS: RETRIEVE INFO, DETAILS and DOS.

RETRIEVE allows you to recover a file that you have listed, as long as the disc space used by this file has not since been written to. Unlike most other retrieval routines I have seen, this command flags all the sectors used in a file as being good, most other routines just reset the flag in the directory entry. The problem with this is that if you save another file after retrieving one, the saved file may overwrite the retrieved one, since the DOS does not know which sectors are used by the retrieved file.

To use the command type RETRIEVE filename where the file name is in the standard DOS format as for example FILE, after entering a RETRIEVE command several things could occur:

1) You could get an error. RE means that an error has occurred. ME means that the file name exists. ME means that the file with the name can be found. LD means that some sectors used by the requested file have since been used by another file, and the file cannot be recovered.

2) OK appears, the command has been carried out successfully.

3) The message LENGTH xxxxx (NNNN) appears, this means that the file could have more than one directory entry (it is impossible to be sure after this has been fixed) and so you are requested to say whether the displayed length was the original length of the file, enter Y or N. If the displayed length is modulus 65536 (ie a length of 65537 is displayed as 1) so you may need a calculator if the file was very big.

INFO displays information about the requested file, the syntax is as for RETRIEVE, ie INFO filename. The file type is then displayed, OK means an OK for data, Basic or Binary respectively (that if the file is a binary one, the start address, length and execution address are displayed, as below).

```
INFO 07 12345 14 3233 OK 12333
```

Here the length is 3233 bytes, the start address is 12345 and the execution address is 12333.

DETAILS displays how the file is stored on disc, listing ALL the sectors the file uses. Usually programs to do this only print the sectors which are recorded in the last directory entry, whatever program or programer all directory corruption even more directory entries. The output of this command will be similar to that below:

```
7 19 33 8 4
34 19 30 34 38
15 9 33 15 14
```

This means that the file occupies sectors from track 7 sector 19 to track 8 sector 14 and so on. This is on a double sided drive, the routine will adjust itself for either single or double sided drives, having respectively 18 and 36 sectors per track. The syntax for DETAILS is again DETAILS filename.

DOS simply removes these extra commands so that you can load in a machine code program which will execute the routines, since otherwise there will cause all the standard DOS commands to stop working. To recover the same command as the

routines have not been overwritten since EXEC 14650.

Note 1: Retrieve doesn't backup the directory to track 15, so if you find that the files have been removed wrongly by you getting the file length wrong, just copy the backup directory to track 20 using SHARED and SAVEITE.

Note 2: The default file type for all the above commands is BASIC.

To use these extra commands, enter the hex loader and use this to enter the machine code. The machine code occupies addresses 14600 to 15700. To save the code on disc enter SAVE "filename", 14600,15700,14600, and to use it just type EXEC filename. If you are loading the program from disc remember to enter CLEAR 1500,1500 first.

Just a word of warning, before trying out the program remember to make a backup of the final disc first, since any error in the code could cause you to lose all your programs on the disc.

Because of this risk, the hex loader has a more sophisticated checksum than is normally used, which detects transposition of bytes which the normal loader doesn't, so using a normal loader to enter the code will always give you a checksum error.

If you don't want to enter the code yourself, I will be pleased to send you a copy of the program on disc (40 lbs 85p) for 35p, this will also include any further comments I have since added. My name and address are: P.D. Smith, University Hall, Barnwood Road, Plympton, Gerni, CPO 576.

```
10 FROM FILE LOADIN
20 CLEAR 2000,31557
30 INPUT "START" : G1
40 INPUT "END" : G2
50 FROM G1+1 TO G2 STEP 5
60 PRINT USING "#### : " G1
70 INPUT "A"
80 CS=0
90 FOR K=1 TO LEN(A$)
```

```
100 CS=CS+RVAL("BH"+PTR(CA$,K))
110 NEXT K
120 INPUT " "
130 IF C=HUB THEN PRINT "CHECKSUM ERROR-TRY AGAIN" : GOTO 60
140 FOR K=0 TO 7
150 POKE 2+K, VAL("BH"+PTR(CA$,K+1))
160 NEXT K
```

```
31680 : 00 78 66 9F 74 66 81 2B : 1610
31688 : 2F 7F A7 18 9E 7E F 118 : 962
31616 : 3F 81 2B 00 51 E 088E 7 : 959
31624 : A8 4A 0F 90 6 1E B F 81 : 803
31632 : 2A B5 1E 1D 0F 17 A7 0E : 1341
31640 : 78 7E 2F 01 1D 07 92 4B : 683
31648 : 01 FF 17 04 0E 03 24 00 : 677
31656 : 33 0A 0D 0F 7F A8 B1 84 : 731
31664 : 24 F 6 5 2 0 1 8 E 7F 8B 7E : 1170
31672 : 04 C D B D 7E B D C 1 A 0 1 8 : 875
31680 : 26 0 1 6 8 0 6 0 0 0 7 7 E 5 : 1181
```

```
31688 : 3F F 7 F 7 8 A 0 9 F C 0 0 0 : 1864
31696 : 18 0 0 0 0 A 0 0 0 0 0 0 0 0 : 754
31704 : 26 7F 03 00 27 11 14 0 0 0 : 738
31712 : 18 0 0 0 0 0 0 0 0 0 0 0 0 0 : 684
31720 : 0 0 0 0 5 A 0 0 F 7 2 8 0 F 7 C : 915
31728 : 7F 5 8 F 7 F 7 8 C 1 A 0 0 5 : 963
31736 : 03 C 0 A 0 7 F 7 E A B 0 0 0 0 : 1874
31744 : 5 8 C 0 0 0 3 0 0 0 0 0 1 0 0 0 : 880
31752 : 03 0 F 7 F A 5 F F 7 F 7 F F 0 : 1364
31760 : 7 F 7 8 F 7 F 7 9 C F F 7 A 0 : 1363
31768 : 8 D F 7 C D 1 0 2 6 8 0 7 F 7 3 : 778
```

31776	7F456A7F9C8B7C2D	=	1342	31226	327A7FA72A6F2F7D	=	1742
31784	18168B1B2397F7F9A	=	1407	31232	7182182B8C8B77A	=	1776
31792	7F7F96F77F96A7F4	=	1583	31238	90B466538C86A6A6	=	1875
31800	0C88182B68176B8F7F	=	994	31244	85677F9FCA1F30C3	=	1159
31808	9D868887881827781	=	448	31250	86DA18F18F8687F7	=	1283
31816	317D7F7A258F7C88A	=	836	31256	1478182B82888F7F	=	873
31824	1777F7F7A8887C1C	=	782	31262	9D8688442A868687	=	575
31832	87F77F7F7A318188E	=	675	31268	3A84688A3888877F	=	871
31840	7FAC38F7F18271828	=	683	31274	9F1C81F87F9A8686	=	1214
31848	8113887887F7F8835	=	948	31280	37318D383A18867E	=	875
31856	1885B1A88818A788	=	478	31286	368878857518F87F	=	1887
31864	48877F7A887F9887	=	1284	31292	9A878881838889788	=	847
31872	7F783F7881487188E	=	883	31298	177F78881788798A1	=	885
31880	7F788A8A877F7A81F	=	1155	31304	7A7F9F28DA8C87F9D	=	1735
31888	3884564456445618D	=	513	31310	A684C8282787F888	=	8888
31896	8E7F88A8A57D787A5	=	1192	31316	1828887873418881A	=	875
31904	378A1488B87F7A843	=	849	31322	74824F88757A882D	=	8856
31912	A4828887887F7A818	=	783	31328	3885A43888478A7F	=	1185
31920	278887A7A853A17A	=	784	31334	957887988887A8C	=	543
31928	7FA82A8C87A7F9F28	=	1126	31340	F8C7F885888817F7F	=	1343
31936	38787FA817888E7F	=	1271	31346	35848D77F7F5C8A8A	=	3114
31944	A818887887F7A89F8	=	1214	31352	288732A138788887F	=	882
31952	181828888A7D7F7A5	=	991	31358	8888877F5C8888A8A	=	1178
31960	2888787F7F7F182888	=	695	31364	8C1888E78C2A7F7C8	=	1283
31968	97887F787888181E	=	1875	31370	88218878889A88C8	=	896
31976	A8188788888A87F7C8	=	1888	31376	8A5D2882887C87C83	=	1819
31984	1818788887A88887F	=	738	31382	4A881887812A887F	=	1884
31992	8881828887F8877C8	=	1881	31388	A78F8128887F7A87F	=	1282
32000	887887887F7F8887F	=	1873	31394	812D894815847A5	=	478
32008	7884A88888887F7A	=	1121	31399	4E47544828882828	=	417
32016	8E78A8887F8878888	=	1234	31405	587F4C2F3F8A8888	=	642
32024	2881591827885881	=	553	31411	8A4F388884418488	=	378
32032	4E28F37E7F7F7F7F	=	1886	31417	8882414338888289	=	887
32040	9A887F7888887F7E	=	1234	31423	4C288883844C8C8	=	758
32048	7C8388287D7F7A27	=	991	31429	38812534C8424143	=	887
32056	8814C7D7F7F9A8878A	=	821	31435	488888428454D8A2	=	861
32064	8F877FA8F67F98A8	=	8428	31441	A84F843A84148C8	=	1888
32072	9F88788888888888	=	639	31447	438F588F8351C841	=	814
32080	7F88A78A888818A7	=	1183	31453	34C8A487D248528F	=	787
32088	7F9888887F7A8818	=	671	31459	58C8A45388A98A89	=	788
32096	8E888F487F7C8818	=	873	31465	D44832A581C8A887	=	711
32104	2888817C7F7F8F67F	=	1226	31471	824854C7A85528A8	=	788
32112	987A7F7F7182A8788	=	1235	31477	D8A8A4C8A8C8A8A	=	1825
32120	5F37A8A87F88D7C8D	=	1883	31483	C48D457247C88882	=	885
32128	1888812A87F7F818	=	881	31489	4454454D4578A8A	=	713
32136	8E8888C88887F78A	=	1888	31495	D424546448D2588	=	829
32144	8C8888A7F7C81818	=	881	31501	47C87373245A1C4	=	873
32152	288131887F7A8155	=	871	31507	57578249A4C88A8	=	757
32160	378A4F2883887F78	=	987	31513	53A8828A8724F1D	=	1181
32168	877F7A1C88738887E	=	1188	31519	46A824541C43357	=	781
32176	8878885C878883887F	=	1168	31525	418882458A82A9A5	=	883
32184	A8818C28878887F7F	=	1188	31531	5AC88A4C8A8C4A45	=	943
32192	188878E8A8A88D85	=	1218	31537	9A648A8D7A48F83	=	471
32200	4A8A88D854A81828	=	888	31543	787A7878877F781	=	1267
32208	8D85A8E1813A388D	=	977	31549	81828A88878A8888	=	1881
32216	957A88A28D854A15	=	887				

# Primesearch revisited

*Paul Woodon investigates a subject of Prime concern*

DEAR Helen: I don't think I'll be sending you another program to solve the Prime puzzle. The program is a utility type program which determines whether any number within a certain range is prime or not, virtually instantaneously.

Regulators at Gordon Lee's competition will be awarded the Primesearch puzzle. This involves some fairly lengthy computing but most time is spent, needlessly in determining whether a number is prime (the prime numbers could be listed thousands of times). Surely there must be a faster and quicker way.

And so there is with these two listings. Unlike without, disc drives will be able to easily modify them to test a range of numbers, say 1 to about 10000. Single disc drive versions will be able to test a range of numbers, say, 1 to slightly over 100000 while twin disc versions will be able to test a range of numbers, say 1 to in excess of 100000. In all cases, these ranges may be altered or even moved but the higher the number then obviously the longer listing ones will take to run. Listing one, as it stands, does take several hours to run. Disc drive owners, particularly will

never regret that intelligence to pay as they will reap the benefits of it for ever, long after.

Listing one, lines 60-142 allows for the data statements to be read, placed into an array and also to POKWRITE them into disc. Lines 140-320 use these numbers in an array to build up a prime number catalogue. By their very essence, prime numbers apart from 2 cannot be even, apart from 3 cannot be divisible by 3 and apart from 5 cannot end in 0 or 5. The numbers in the data statements themselves about the best possible chance of being prime. Line 300 calculates the next value (N) to be tested for primeness in the subtable (lines 290-320) and adds it to A15. If prime, it is composed. When A15 is 60 the waiting time for POKWRITE is long (line 360). Line 40 starts line 50000 used in case of error. Line 50 (initialisation speed) which should not be used if your machine can't handle it, but if it can't handle line 200 and be found most useful for interrupting it to see how things are progressing.

## Listing one

```
10 DATA 1,7,11,13,17,19,23,29,31,37,41,43,47,
49,53,59,61,67,71,73,77,79,83,89,91,97
20 DATA 101,103,107,109,113,119,121,127,
131,133,137,139,143,149,151,157,161,163,
167,169,173,179,181,187,191,193,197,199
30 DATA 203,209,211,217,221,223,227,229,
233,239,241,247,251,253,257,259,263,269,
271,277,281,283,287,289,293,299
40 ERROR GOTO 350
50 POKWRITE POK,0
60 DIM R$(50)
70 Q$="DATA0"
80 CREATE Q$,240
90 FOR I=1 TO 50
100 READ Z$
110 R$(I)=Z$
120 Z$=STRING$(1-LEN(Z$),"0")+Z$
130 WRITE Q$,FROM I-I*5,FOR 1,Z$
140 NEXT I
150 NMS="PRIME0"
160 CREATE NMS,334*60
170 FOR L=0 TO 330
180 A1$=""
190 FOR K=1 TO 50
200 H=L*360+VAL(R$(K))
210 PRIN#H
220 B=INKEY$:IF B="0" THEN POKWRITE
FOR,0 ELSE IF B="F" THEN POKWRITE FOR,0
230 GOSUB 250
240 NEXT K
250 PRINT#15
260 WRITE NMS,FROM L*60,FOR 50,A1$
270 NEXT L
280 POKWRITE POK,0,STOP
290 FOR F=3 TO SQR(10)-.5 STEP 1
300 IF H/F=INT(H/F) THEN A1$=A1$+"F"
RETURN
310 NEXT F
320 A1$=A1$+"I":RETURN
330 POKWRITE POK,0,PRINTERR;GOTO STOP
```

## Wear and tear

Listing two is a refined system which determines whether the number computed is prime or not. This may be used as it stands or used in conjunction with your own program. Lines 520-640 PLEAD what is stored in the first 24 addresses of H\$(0) on disc and place them in board computer array. This is done to wear and tear on the disc drive (give instant response and utilize memory which would otherwise be unused). Line 560 clears string space for this purpose and also for storing information PLEAD is from GARD0 to (line 570-600).

You are then asked to enter your number in line 610. Line 660, assuming you have passed several elementary checks in the preceding lines, calculates the location of the address (divided by 500) and otherwise, remember. This remainder is searched for in R\$ array (line 570-600) and its position noted. The relative address is looked up (line 600 or 710) and called A1\$. Line 700 looks up the required position in A1\$ and calls this P1 (either a 0 or 1). On this line 750 control either goes to line 730 or 760 where you are told whether your number is prime or not.

These two programs could also be a direct result of Gordon Lee's Primesearch puzzle. Owners of disc drives will have no problem in trying in all possible numbers up to 999999. Unfortunately, they have a single drive and had to make do with all numbers up to 999999 except we digit numbers starting with an even number. (Computers will probably know what I am talking about.) Whether you are going to use this or not is up to you, dear



# Sound house

Wayne Smithson takes a sound sample

AS the name suggests, this program is a sound digitiser (well, truly, later). It lets you sample sounds using the cassette port — I've done not necessarily mean that you have to sample from a cassette recorder. You can sample sounds using a microphone or by connecting other data ports to a Dragon.

Sounds are digitised and stored in memory; you can digitise more than one sound by altering the memory size (as planned later). Once you have the sound you can then speed it up or slow it down and even or load to cassette. An extra facility of the program is an 'analogue' section. This lets us in ordinary music tapes and displays coloured bars (beaming out) accordingly. Yes, Your Dragon can beam.

First of all type in **loading.exe**, this is the basic controller program that is used to load or cassette MD and save from disk or cassette whichever you're using an **SOUNDHOUSE**. Note the changes for the cassette version. The memory address of the PCROMs in lines 180 and 190 are the loading start and end addresses of the program being loaded. The basic controller also loads in the machine code which lives at address 3072 to 4094 in drum.

Once that has been typed in and saved, **NEW** (new program) and type in **loading.exe** the new loader. From line 100 onwards you must type in the data contained in **loading.exe** — forget about the numbers before the address! — The first data line would be this:

```
10 DATA %B%OFFF%OFFF%1A%2B%
20 DATA P%254%08%07%F%25%0C%
```

When all the data has been typed in, it would be a good idea to save it onto disk or a separate cassette just in case it doesn't work when you run it. Once the data is typed in and the program saved, **RUN** it. You will see the numbers appearing on the screen as they are POKE'd into memory.

Providing you have saved the basic file loader without data, you may now load the sample sound by typing **END%3072**. Then the game as which you will know there are any errors in your data or not. If you are greeted with a blank screen or nothing at all or busy noises then there is an error in your data. If you are greeted with a

characterboard then you've typed in the wrong thing. What you should get is a screen on screen listing the various options available to you. Pressing either **BREAK**, **L** or **S** should return you back to basic in which you should see the code as follows:

```
3072: SHCODE:3072:4094:3072 (for disk)
CLEAR: SHCODE:3072:4094:3072 (for cassette to be saved on tape after the basic controller — testing.exe)
```

To use **Soundhouse** then, from disk just type **RUN:SHCODE**, from cassette **CLEAR:SHCODE** then **RUN**. Alternatively you can save the basic file using the auto-save program in a post about **DU** and use **CLEAR** to load the lot in.

And now all to actually using **Soundhouse**. Firstly make sure that the ear and headphones are connected between the Dragon and your cassette recorder and plug in the remote pack. I will take each option in turn and describe what it does.

**A, AUTOANALYSER** This passes control to the program analysing data which can be on any whatsoever but who cares? It's fun. Play any music tape, the sound will come from the TV and the coloured bars will show up and down with the music. An easy completely useless, but it's nice to watch. Pressing the **BREAK** key will return you to the main menu.

**D, DIGITISE SOUND** Guess what this does? You guess it. Sound is sampled from the cassette port and stored in memory between **START** and **END** shown at the bottom of the screen. The speed of sampling is set by **SPEED** a value of 100 is a good speed to use. Playing music tapes while digitising will of course result in that music being digitised. The quality from tape is a bit gritty because the sampler picks up the background noise but you can definitely hear your Dragon playing back the Eurythmics or Status Quo. To digitise your own voice, a friend to do it directly using a microphone. To do this, just plug your microphone into the RECORD socket, make sure the ear socket is connected and there is no tape in the recorder. You need to press **PLAY** and **RECORD** down on the cassette recorder and to digitise without having a tape in your

will have to push the button at the back LHS of the recorder in with your finger. You can then talk into the microphone and it will be instantly played through the TV and digitised. You can also digi-ise sounds made by other computers (Commodore for instance) by connecting the audio out and ground from the C64's monitor socket straight into the ear socket on the Dragon. I could only advise doing this if you know what you are doing (I don't) and thank you Dave Gals (and Mark Perry for taking the trouble to do this). The effects are much better though.

**P, PLAYBACK SOUND (SINGLE)** This plays back your digitised sound at the speed set by **SPEED**. If you alter the speed after digitising your Status Quo music like the Smurfs in a record at half speed. You can play back part of your sample by altering the memory boundaries **START** and **END**. Data is not lost by moving these.

**C, PLAYBACK SOUND (CIRCULAR)** As for **P** but play the sample over and over again until you **HOLD DOWN** any key. You may have to hold the key down for quite a while for it to stop.

**SL, SLOWLOAD SAMPLED SOUND** These options for themselves save the sampled sound between the **START** and **END** addresses inclusive. Loaded samples are placed in memory where they were originally saved from.

**R, RESET MEMORY TO FULL SIZE** This places the **ADDRESS** **START** (3072) into **START** and the address **SHOFF** (32768) into **END** to increase the amount of memory available for samples.

**ANALOG KEYS, ALTER MEMORY SIZE** The arrow keys move the memory boundaries around. Using the **home** allows you to look over certain parts of a sample like a word for instance. Rightmost arrows can roll **END** and up/down arrows control **START**. Pressing the **SHIFT** key will speed things up considerably.

**< > ALTER DIGITISE SPEED** Obviously pressing either < or > (shift key not needed) will alter the **SPEED** of digitising playback. With this you can find out what you sound like at 75 rps or at 555 rps.

```
LISTING 1: BASIC CONTROLLER
10 *****
20 " SOUNDHOUSE SOUND SAMPLER "
30 " (C) 1987 WAYNE SMITHSON "
40 *****
50 '
60 PHODE%PCLEAR1:CLEAN100,5999:
AUDIOIN:POKE251,4H17:POKE252,4H7
```

```
0:POKE253,4H7F:POKE254,4HFF:LOAD
"SHCODE.BIN":CLOSE
70 POKE180405,1:POKE%TO99%HEXT
80 REEC1072
90 IFPEEK(255)=1 THEN110 ELSEIFF
EEK(255)=2 THEN150
100 END
110 CLS:PRINT:INPUT"SAVE NAME";H
```



```

8
120 S=PEEK(251)*256+PEEK(252):E=
PEEK(253)*256+PEEK(254):PRINT:PR
INT:PRINT"START ADDRESS:"S;TAB(2
5);HEX$(S)," END ADDRESS:"E;TAB
(25);HEX$(E)," MEMORY USED:"E-S
;TAB(25);HEX$(E-S)
130 SAVEH$+".DIG"+S,E,350:CLOSE
140 GOTO70
150 CLS:PRINT:INPUT"LOAD NAME";H$
8
160 LOADH$+".DIG":CLOSE
170 POK251,PEEK(1610):POKE252,P
EEK(1619):Z=PEEK(251)*256+PEEK(2
52):Z=Z+PEEK(1620)*256+PEEK(1621
)-1:POKE253,INT(Z/256):POKE254,Z
-INT(Z/256)*256
180 GOTO70
190 '
200 'TYPE "GOTO70" IF AN ERROR
210 'OCCURS IN THE PROGRAM.
CHANGE FOR CASSETTE VERSION
60 PHOED=PCLEAR2:CLEAR100,5199:
ADD100H(POKE251,4817:POKE252,487
8:POKE253,487F:POKE254,48FF:CLOA
ON"ENCODE"
70 REM
130 GRAVEN M$,S,E,350
160 CLOADH M$
170 POK251,PEEK(487):POKE252,PE
EK(488):POKE253,PEEK(126):POKE25
4,PEEK(127)

10 "MEX LOADER FOR SOUNDHOUSE
20 "
30 PCLEAR4:CLS:PRINT#224,"ADDRESS
S:"; "VALUE:"
40 FORH=30720+894
50 READAS:POKEH,VAL("4H"+AS)
60 PRINT#232,H;:PRINT#246,VAL("4
H"+AS)
70 NEXTH
80 END
90 "PUT DATA HERE
100 DATA .....

0C00+10 FF 0F FE 0F FF 1A 50 86
0C09+FF 23 8A 08 87 FF 33 7E 0C
0C12+76 CE FF 01 8D 00 A6 C4 B4
0C1B+7F 56 24 02 8A 08 A7 C1 39
0C24+86 0F 86 10 00 A7 80 8C 10
0C2D+20 26 F9 06 80 8E 04 00 A7
0C36+80 8C 06 00 26 F9 8D 80 06
0C3F+81 03 10 27 00 81 8E 04 00
0C48+CE 10 00 86 8F 97 E7 13 34
0C51+10 A6 C4 C6 20 30 30 8B 86
0C5A+7F 20 97 8B 86 FF 30 9A 8B
0C63+84 01 27 0D 96 E7 A7 8B E0
0C6C+A6 C4 27 10 6A C4 20 0C 86
0C75+80 A7 84 A6 C4 81 0F 24 02
0C7E+6C C4 35 10 96 E7 88 10 8A
0C87+80 97 E7 33 41 30 01 8C 04
0C90+20 25 8D 20 A7 8E 05 E0 9F
0C99+88 8E 0F 50 96 F8 8D 3A ED
0CA2+81 36 FC 8D 34 ED 84 8E 0F
0CAB+E9 96 FD 8D 28 ED 81 96 FE
0CB4+8D 25 ED 81 0C FD 93 F8 D7
0CBD+E7 8E 0F F2 8D 1B ED 81 96
0CC6+E7 8D 12 ED 81 8E 0F F8 86
0CCF+0D 95 8D 08 ED 84 8E 0F 8E
0CD8+7E 90 E3 34 02 44 44 44 44
0CE1+8D 30 81 39 23 02 8B 07 25
0CEA+04 04 0F C8 30 C1 39 23 02
0CF3+08 07 39 8D 8A 77 8E 0E 88
0CF4+8D 90 E3 8D 90 E3 8E 04 00
0D05+A6 84 84 8F A7 80 8C 05 E0
0D0E+26 F5 8D 83 8D 8D 06 81 03
0D17+10 27 00 D5 81 41 10 27 FF
0D20+03 81 44 27 8C 81 50 10 27
0D29+00 88 81 43 10 27 00 7D 81
0D32+53 10 27 00 8D 81 4C 10 27
0D3B+00 81 81 52 10 27 01 3C 91
0D44+26 10 27 00 A6 81 2C 10 27
0D4D+00 89 81 08 10 27 00 C7 81
0D56+09 10 27 00 E7 81 0A 10 27
0D5F+01 11 81 5E 10 27 00 F2 81
0D68+15 10 27 00 A5 81 5B 10 27
0D71+00 04 81 5B 10 27 00 EE 81
0D7A+5F 10 27 00 D0 20 91 9E F8
0D83+C6 08 D7 E7 86 FF 20 46 86
0D8C+C5 01 27 04 10 21 FF FC 86
0D95+08 4A 26 FD 0A E7 26 EA E7
0D9E+80 F7 05 FF 9C FD 25 D8 86
0DA7+60 87 05 FF 7E 00 12 97 FA
0DB0+5F 20 03 5F D7 FA 8D 8C 13
0DB9+9E F8 C6 08 D7 E7 A6 8D 9C
0DC2+FD 24 14 8F 46 24 02 C6 7F
0DCB+FF FF 20 C6 8B 5A 26 FD 0A
0DD4+E7 26 EE 20 E2 96 FA 27 05
0DD5+8D 8D 06 27 D7 C6 01 8D 0C
0DE6+13 7E 00 12 86 01 20 02 86
0DEF+02 97 FF 10 FE 0F FE 39 86
0DF8+0D 93 81 10 24 01 4C 87 0D
0E01+95 87 06 CF 7E 00 10 86 0D
0E0A+95 81 01 27 F0 4A 20 ED DC
0E13+FD 8D 00 8D 10 9D FB 22 0A
0E1C+0C FD 10 93 F8 23 05 83 0D
0E25+01 D8 FD 86 FF 8E 01 50 A7
0E2E+8D 8C 01 5A 26 F9 7E 0D 10
0E37+0C FD C3 00 8D 10 83 7F FF
0E40+23 E4 0C FD 10 83 7F FF 24
0E49+8E C3 00 01 20 D7 DC F8 C3

```

0E52=00	80	10	93	FD	28	0A	BC	F8	0F2A=53	41	56	45	20	53	41	40	50
0E5B=10	93	FD	34	03	C3	00	01	DD	0F33=4C	45	44	20	53	4F	55	4E	44
0E64=F8	20	C1	DC	F8	83	00	80	10	0F3C=00	4C	3A	20	4C	4F	41	44	20
0E6D=83	17	70	23	F1	DC	FD	10	83	0F45=53	41	40	50	4C	45	44	20	53
0E76=17	70	23	E9	03	00	01	20	E4	0F4E=4F	55	4E	44	00	52	3A	20	52
0E7F=DE	17	70	9F	F8	8E	7F	FF	9F	0F57=45	53	45	54	20	40	45	40	4F
0E88=FD	7E	00	10	53	4F	55	4E	44	0F60=52	59	30	54	4F	20	46	55	40
0E91=40	4F	55	53	45	20	53	4F	55	0F69=4C	20	53	49	5A	45	00	00	41
0E9A=4E	44	20	53	41	40	50	4C	45	0F72=52	52	4F	57	20	40	45	53	53
0EA3=52	30	20	43	29	31	39	30	37	0F7B=3A	30	41	4C	54	45	52	20	40
0EAC=20	20	20	57	52	49	54	54	45	0F84=45	40	4F	52	59	20	53	49	5A
0EB5=4E	30	42	59	3A	20	57	41	59	0F8B=45	00	3C	3E	3A	20	41	4C	54
0EBE=4E	45	20	53	40	49	54	40	53	0F96=45	52	20	44	49	47	49	54	49
0EC7=4F	4E	00	00	41	3A	20	47	4F	0F9F=5A	45	52	20	53	50	45	45	44
0ED0=20	54	4F	20	41	4E	41	4C	49	0FAB=00	42	52	45	41	40	3A	20	45
0ED9=5A	45	52	00	44	3A	20	44	49	0FB1=50	49	54	20	50	52	4F	47	52
0EE2=47	49	54	49	5A	45	20	53	4F	0FBA=41	40	00	00	53	54	41	52	54
0EEB=55	4E	44	00	50	3A	20	50	4C	0FC3=20	00	20	20	20	45	4E	44	20
0EF4=41	59	42	41	43	40	20	53	4F	0FCD=20	20	20	20	4C	45	4E	47	54
0EF5=55	4E	44	20	28	53	49	4E	47	0FDE=40	20	20	20	53	50	45	45	44
0F06=4C	45	29	00	43	3A	20	50	4C	0FDE=00	24	30	30	30	30	20	20	20
0F0F=41	59	42	41	43	40	20	53	4F	0FE7=20	24	30	30	30	30	20	20	20
0F1B=55	4E	44	20	28	43	49	52	43	0FF0=20	24	30	30	30	30	20	20	20
0F24=55	4E	44	52	20	00	53	3A	20	0FFA=30	24	30	30	30	30	20	20	20

Missouri was called the Emerald State.



# Expert's Arcade Arena

Write to: The Experts, a Dragon User  
25, Newcombe Road  
Hounslow, Middlesex TW4 6EP

All the sweet fragrance of Autumn descends throughout the Dragon world and with it brings a host of new ideas, new names, and even ones existing, a new Gauntlet's services of which you have for one month only to enjoy and savor.

Strut down to business, and select the Expert, ladies and gentlemen boys, go and visit the Editor's grandparent's the A-Z guide to Dragon arcade games so far released this year. So with no further ado, take a look.

**CRAZY FOOTIE 20** (Dragon Software) Release date: range of 1988 and priced at £29.95 the Crazy Footie only continues this time offering a vast improvement on Crazy Footie 1 which resulted in a program I once wrote on a £28.95. However, I feel it changed, the same in comparing colour graphics along with several other new additions.

Your goal? It is of course to deliver the opposition to a microchip or human using eleven players, synthesized on the screen as living alien, each with their own uniquely determined set of characteristics. The subsequent results in the game being one of the most chaotic and intense, but none the worse for that.

This certainly offers a stark contrast to that of *Robot Racers*, with an equally on racing pace, easily putting it the outlay.

## Track designer

**BUFFOUT** (Dragon Software) Well being in the luxurious position of having a crystal ball, I am able to come across this game as, within a time of writing it, it has yet to be released. However, during off old columns, I am excited by Andrew Hill of Dragonfire that this is solely based upon *Breakout*, which was certainly first released when a certain first discovered the wheel. With it comes the test of time? Only time will tell.

**FORMULA ONE** (Panicom) Released at the London show in December 1987, it still worthy of mention. The version of *Scatterbrain* has already over taken *Speed Player* and *Kong* games to become one of the best all-round games produced for the Dragon.

On a split screen format, would be Nigel Mansell have the option of racing either the computer or a friend, along with having the additional option of being able to change his/her car's various tools, adding complete program hidden on side B. Congratulations to Pansy on an exceptional game, which is doubtless in her list for the Dragon. I sincerely hope it isn't her last.

(One only doesn't always play...ZF)

**LUCIFER'S KINGDOM** (Dragon Software) Priced at £29.95, Lucifer's Kingdom, many thematic options, deserves to be at

the top of my list which may have way to Santa in forthcoming month. Compared of detailed scrolling graphics, the game is an action and action in the future. Having other ideas, eight sets of menacing alien act as a speed and seemingly never ending obstacle course, to which you must weave, dodge and generally blast it into a sea of green. The entire only addictive game should not be missed, being as it much needed a visual and the cold dark, average are almost up to it.



**MANDRILL** (Rogue Software) I once had a friend who believed the Dragon as a game machine, and a champion. Looking back at the archives, it was hard to argue against that point.

However, one of the games of *Mandrill*, available at only £4.95 would easily dispel any myth, as without a doubt of his quality of software, as mentioned, the Dragon is set to rival any 8 bit machine, purely on the strength of it being a game machine.

You play the part of Mandrill, an advanced robot the son of whom is to battle through two levels of enemies, trapped

in a prison built by the alien. It is certainly not quite *Mandrill*, which is why you may have found to accompany your Dragon 24 upon purchasing it.

As you may have already gathered, I am not the most ardent fan of *Mandrill* and I am afraid this version does not improve enough to change my view.

For the second your aim is to blast everything in sight to smithereens however, instead of shooting a more powerful weapon, the intended player must only use a laboratory plane and one minute in the hope that an unsuspecting opponent should trigger them off, which in turn creates more trouble, if not later unsuspecting opponents.

Even with an "economical" price tag of £29.95 I am only able to recommend this game to those to whom *Mandrill* is the best thing since Neighbours, and who require a very good version of it as I have a lot to do.

**UTOPIA** (Panicom) Fresh from the old idea of Joseph Conrath, it has been said that this is very similar to the aforementioned Lucifer's Kingdom, although, while I find it a bit of a bore, the game to be of a kind, the only other aspect of the game which I can see as being similar to the fact that they are both very good games, unsurpassed by any other in their field.

Your aim is to escape, as the title suggests, from the planet Utopia, and in doing so, escaping from the unique defense system, involving thousands of style space craft, which always stream out to guard a surface.

As already stated, priced at £29.95, this game carries the through recommendation, and indeed, rather than picking between Lucifer's Kingdom and this, I would not be so suggest you purchase both, as you are unlikely to find better.

## Small but perfect

Quality comes before quantity and that is certainly how the Dragon arcade scene has at this previous chapter is into. In order to keep the continuing stream of new releases coming, the firm message from the suppliers suggests that they urgently require more support. With the current quality of our advantages being compared, there are few who deserve it more so.

My final message to you my loyal friends, before I step off the road of the editorial line, make to be a dragon, support them to support you. You just your bulging wallet have the golden opportunity to do so at the Apollo Hotel, Weston Super Mare, on Sunday December 4, in the humble words of the Four Tops, I'll be there. Do I let that pay you off well you? After all, a wouldn't be much of a show without you, would it? Good night.



eggs, sautees, and anything else one could possibly imagine.

On the basis of my brief glimpse, *Rogue Software* is definitely a name to watch out for.

**SUPA WOA** (Dragon Software) Sops



# Write: ADVENTURE

*Pete Gerrard finds the streets of London paved with misadventure.*

538 months ago in the April 1988 issue of *Dragon*. Over the column devoted to topics as something which I termed "interconnectedness." The idea was that people engaged up ideas for adventure games that were based on fact, rather than fiction, and subsequently turned those ideas into what would become some pretty interesting games. One unusual mythical acquaintance I have said that they would like to hear personally, but as I live on a small peninsula.

We'll stick to two of the main themes, namely episodes from my college days and getting your facts right when writing an adventure game, but we'll get to the following game as much with science and statistical adventures. We'll see. What we will be considering is the streets of London and various incidents that took place upon them, and if you're going to be including an adventure to *Remedy* (for example), it would be well if you get all the facts about London correct, simply they are based on the place. Even if you want to write your game as a company where never got lost in London, someone playing it would pull you up if you got something wrong.

## Alma Mater

In our imaginary adventure you are a character who is studying at UCL (University College London) and what was that controversy about the UCL officers' study last time around. Holm? (I'll be with the one who said "Holm has a lot to answer for, but mostly on the side") was almost, inevitably, known only by his surname, which was Pope. Pope was a legend at college, and a lot of two of the incidents attributed to him did in fact happen to a few people (that is not important). They said, and should have happened to Pope. What is important is that he got out of college, right for instance, if an incident took place on the Strand, then really a Barrow's Bank must. There are in fact two of them and the one in question is at the end of Trenchard Place.

I remember one night that we stayed here was cycling home (Pope cycled everywhere) and was feeling somewhat wobbly owing to an overindulgence in nocturnal lubricant. Pope was in need of money and came to a hall outside the aforementioned bank. After a little search he came up with his card and an electric meter in a magic money machine, but after for him the machine wasn't working. To his belated mind the meter was switched like a microwave oven, and he switched around for a brick to throw through the window. He found one a hefty solid sort of brick, ideal for smashing windows with. He hurled it at the bank, but

made one mistake, when he forgot to let go. The result of this was that both he and Pope came down through the window and there he lay, still in the position and hauled him away. How is an adventure would you explain your way out of that one?

The second incident took place in the courtyard. Henry VIII's brother, Edward VI, died of Typhoid in 1553. The bank is on the corner of a T-junction and there are two sets of traffic lights. Opposite one of them there are two telephone boxes, which are both working. Again it was night time, again Pope was cycling home and again he got into a bad way. If not really, in Charing Cross, he was brought to what is one of

been known for quite a while. Pope is the owner of the bar, who shall remain nameless, decided that the one thing the bar needed to make it complete was a white crossing outside, not that they could cross the busy road in safety during daylight. He decided to lay it that night in the morning, there was a lot of traffic about, and so they set to with one tin of black paint and one tin of white paint, one each to paint their respective sides crossing. Unfortunately one of the neighbours noticed this and, oh my, I take it is quite the charitable neighbour in which it was noticed. They called the police, but by the time they arrived the crossing was finished and Pope and owner were safely back inside. When the knock came, however, the one thing you don't do is get it while carrying two tins of paint and saying, "It is a bar cop, sir."

## Get an A to Z

With so much scope for an adventure based on the streets of London, I can't avoid it, but there aren't many games that let you do it. If you're going to do one, with yourself with it, it is a lot more difficult. You don't want to have to go to the end of the Northern Line of the underground, for example. You don't want to go to the south of the river Thames, or that opposite Holm. The Strand, being the southernmost street in London, is the one that is the most difficult to go to. And if you're going to have a 3D Street-view escape game, climbing up Big Ben, you might have to have some details like a flag flying from Victoria Tower when parliament is sitting, and so on.

Underneath the street, the way and the place really was at the back of Charing Cross and St. George's. It is an excellent place to start an adventure game, a good location. The Strand, Holm. This is a very nice, I think, it is a job, it is possibly the most well used of all parts during the last season. But also a kind of museum for the great historical detective, with a street view, and it is the Strand, being down at you from the wall. Could be many an adventure, some more in this particular building.

Many details in adventures always help to set the scene, so if you're going to include London 200 as part of your adventure, you might like to know one incident, three events, and so on. Two of the events were taking around the 200, attending the animals and attending up a crowd of people to a lot of cages all full of various of prisoners. Nearly was a troop of 1000 Scouts being led by another 1000 Scouts, and so on. I was wondering one of the cages, started looking the other end of the cages, it was taking me all about it.



the sets of lights, and for once he didn't fall through. I am not decided to wait. A car pulled up, stopped, and there they waited together. And waited. And waited until the latter said that was a very nice ride. Pope's brain got the better of him and he got off his bike. He heard it carefully against the lights, went over to the car and let the car off. The lights, but as Pope was a much bigger man than the police, by the time they arrived Pope had had a lot of money, and was attempting to run off like the furies. The police, being him, by the way, by the way, the car, attempting to follow them up. By the way, once more he was heading away, and once more he would you get out of that situation, adventure player?

## Pope of E8

Our final incident in our imaginary adventure in the streets of London is that the final one involving Pope took place in Charing Cross, Holm, or E8. There was a party going on, it was the early hours of the morning, and the figure had

strenuous, when I burst out laughing. I pointed at the sign: my friend read it and the two men overcame with mild hysteria. The phrases in question were by the rather unfortunate name of the Cockles Present, and whoever wrote the sign must have had a sense of humour. Thus said the Cockles Present, supposedly it is very difficult to be so in captivity! Hardly surprising really was to assume like this, but we left the bathroom get on time to explain it in the studio. My own friend's mother.

And of course, in 2008, celebrities always mob someone when young people are watching. I think they do it deliberately.

[illegible]

only recently turned 18, so perhaps his over-enthusiasm could be explained. But that after all spent the night in various events. As my phone approached I continued to the top of one of the towers and waved happily at the world in the Plaza. They cheered. When he got back home his mother asked him if he enjoyed himself. He replied that he had. He hadn't had too much to drink though his mother had commented he had drunk himself red. Then his mother wanted to know what was going on top of the towers on the news on television? Caught up by his own psychology, whether that for the subject was his daughter.

**Birthday card**

So with a combination of facts and experience, it's not always that difficult to come up with good and original ideas for adventure games. My own inability of loyalty in fact would have made an interesting enough quest. Buying a birthday card for grandmother would seem on the face of it an easy mission. But so does reading and we can imagine what happens when

being diverted off their life paths because of a road being moved, the weather decides that it will transfer material its landlady from sunbath to rain, some crops have closed early because of hail-day closing while others remain open. These that are selling cards are selling only those not with themselves as well as a student who brings even a book to learn. It is a matter of knowing that you cannot leave the house before the post has arrived or raise the hellacious red door designer (to add to the collection of postmen burned in the bush garden) by passing another one (and his postmen under my very nose). Douglas Adams (*Hitchhiker's Guide to the Galaxy* man) has co-produced a very successful advert for a called *Postman*—based on the problems of dealing with such things as letters and airports. They are as-nearly compared to the problems of coping with subjects like postmen, dogs, trees and/or the like as can be.

Well, I hope that gives you a headstart for adventures. Enough of that though we've neglected programming long enough. So back to the real world and around Mesutianah. I'll be writing about beer and events of local and international interest.



COMING upon November of this year (as-watched best month) is an interesting event for educators everywhere. It is an annual bash, and those pathways look at some of the happenings from last year.

The Adrenaline™ Convention was held at the Europa Gallery part of Burton Library on the 28th November 1987. It was, apparently, the second such convention although I never heard anything about the first. At it was well-promised such treats as talks to both user-adventurers, adventure creator programs and what the large halls for adventure games, as well as demonstrations of various popular games. Throughout the day "What did we get?" heard on.

### Sutton bound

You know we always game for a laugh, right? Sandra (Shaw) then spins various *Adventure Probe* and *Spookhouse* tales but now moved on to great things in the videogame world, asked me if I was traveling down to Seattle for the release.

tion I replied, of course! The original plan was for us to meet in London separately on Friday and then meet up on the Saturday somewhere near the Europa Center.



However, events were such that we ended up meeting down together in downtown Los Angeles. I arranged a meeting with someone without telling David anything.

about £1. The train journey was cold but otherwise uneventful – in over 1 year spent at the price British Rail charges for costs of McEwens Export, we planned out several adventures, and even only half an hour late getting into London Euston, it was British Rail's excuse, dead reliability on the line at Gosport, or perhaps a characterless

On the ground of showing Ben to his old university followed by the possibility of meeting some of my former colleagues, we went into a particular bar, the one across the Jeremy Bentham at about ten past two. A nod to a friend, I asked him and Genda what they wanted to drink, and then said to Genda: "I thought you might like to meet my brother. You Mike Genda Adventure reviewer extraordinaire (taking liberal several parts of leger). An interesting bit about the world of adventures occupies your most recent magazine or so, then I thought he'd be off and Genda had to be disposed of an effort to Genda to meet his sister with whom she would be staying (the world).

No problem, you might think. Hang on there is an advantage: *imagination*. You can



gangs, and life is never that easy! Sander was understandably enough in the wake of the terrible first King of Crops, unwilling to reveal the underground and make it a merry game since I sat on a bus in London. I decided to do the found but not with it. It's not that he really. I think that mistake once, only in the narrow direction. Sandi - flip in like this and had to spend 24 getting my shoes re-soled!

Hours later the sun was going down the foot was a rainbow and the water had all but vanished. So even that I got up on Sander's carrier bag and proceeded to some Buckingham Palace by spell-light. Unfortunately Sander I have a featureless white cube to throw ourselves to the sky. So we had to describe the most incredible scene of stars around the Mall before actually reaching the Palace. Was Lady Q there? Could I see her? There was a guardman, but as he wasn't wearing a red uniform Sander cursed him loudly and returned on.

Eventually Sander was deposited on the correct level to Sander and I was I was I was above over the events of Friday night for fear of changing those of a nervous disposition.

Sunday morning dawned bright and early and after reading some advance news of Beyond Zork in the wonderful In-Looker newsletter The Status Line, which simultaneously led to immediately Dami Grogg (the real one) My host for I've received John (Pang) and I decided that we wanted a reward nomination. Just the word of nomination as the discipline on a win as an example apart from, I must have one. If we did, we might have found in light to go to park in Sander, but as it was we had to leave our character down a side street on a yellow line and hope and pray that nothing would happen to it.

After that was sent (we did find an NCP place that had space for 3,000 cars, but as we were in London we couldn't find it) I got my better when we finally found the Europe Gallery. Eventually we flipped down two policemen and things got ugly, really worse when Dami started off with "because me, damn, can you do some mad stuff as a policeman in trousers and red and green as his. Her friend seemed most amazed and directed us to where we wanted to be. Outside the gallery was a Sander library, testing the bag of gifts and after a heavy fight we were out the commission. At last!

## Civic scenario

It was taking place in Sutter's Cave. Can I see, which houses a wonderful history and many other offices and doors and files, plenty of copies in which I have seen. We did, of course, but finally got the start of the convention proper.

Since Sander had already been in for a quick look round (a just arrived at night past the reception desk, I believe my Adventure Probe from local, was duly requested and walked in after Sander. Dami's brother followed but was pulled back by the chair on the desk. Dami, he is claimed, my book of irrepressible words off

must get another one, and when he signed himself in as Dami Grogg and tried to pay him Zorknote for his entrance money he left behind him very confused misapprehensions and jolting me said Sander.

Downstairs there was not a lot going on so we decided to wait to be put on the list of the convention. Two M's, an orange cat and a green one, to choose from. A choice was made, but we got into the orange cat, pressed in the up button, and after a moment's hesitation we were off.

Updates and an engaging chat with Mike Austin, one of the many people responsible for Level 8. Oh, an Alan Todd



which amazingly managed not to drop me into Sander's carrier bag. He was running but he had lost Level 9 adventure as well. Grogg (Pang) Wonderful stuff. It's a word-bugger, it just to read the book that accompanied the game, a diary belonging to the hero Ingrid. Such characters as Athak and Ingrid (not sure about the spelling there) Sander's endgame. In the game whenever an "on" appears at the end of a word it is prefaced with a "g". Thus you can move north, growth and the prize for the first five moves is what grows, or what grows I suppose (but grandmama's like to experience it one point calling someone a progressive. The graphics on the 1040 were truly wonderful, and Dami bought a copy there and I lost.

We heard a lot about graphics in adventure and it seems that many people only put them in because the distribution was outside on equipment doesn't have them. Some people love about them, of course, the very same people who love about MUD and Shades, two rule over the "Zork" games, but do they have graphics? They do not, so I think we ought to start a campaign for MUD to have graphics. After all, if a humble Dragon can have them, surely something with the power of a DEC 10 or whatever is capable of having them and displaying superb pictures? Taken on a level of common sense on.

We went on to another Area and enjoyed Magnus's Sander's people by immediately turning the graphics off on The Power and plan to do it later on. After expressing our own appreciation at the

many adventures in the game, and heard that was a game of the year award beyond this we went elsewhere.

Actually, we went to a pub but we'll go now that diversion and get back to the convention.

Along with Jon Grogg, an adventure reviewer who attended again on our own, a white cat came to the coffee bar, we went to the last table of the day (night confusion over the staff too easy to put opening hours), a discussion on the level of adventure game with Peter (Lambert) as the main speaker. But the only speaker. The men would look to interruptions and discussions of interesting topics and from the way the pub has opened some it seemed that the one side of the world knew how to write adventure games except him. I believe I saw an Austin attacking his head with a stone one point, and someone moved on and on (he didn't even do it) and my worst of emotions. Feeling that I just got up and walked off with Sander and Dami, and on the other side in another room to the coffee bar. There we met Sander's sister carrying codes of our belonging to Sander, and that was really the end of the day's entertainment.

## Horizontally mobile

Being a thirty fellow Dami gave Sander a lift back to Union Station, and we made sure that she got on the right train at the right time. Not sure if it's a great memory, but Sander as she would be the first to admit, a minor panic at seeing several hundred policemen and police dogs on the stairs awaiting a load of footmen to be somewhere, but when they were going they were not going on to the adventure (and Sander would go safely home to sunny Wigan).

I stayed on an entire day (partially because I wanted a drink at Sunday lunchtime in Liverpool). It was so busy we nearly missed the pub but we got there in the end. What a collection of customers! I love it, despite the fact it's really hot! They do, thousands of them, and they can stay there. Upstairs is mobile everywhere, and by the time we left the pub was mobile as well, but really not very good. A decent move to the horizontal. I lost.

And the convention? A good idea, that no one seemed to know what to do with, and the overall opinion of Sander and I. More probably would have helped, and some to leading adventure journalists, and magazines that have advertising, and certainly more advanced advertising about it all. But I helped them, and some of the advertising could have been better and made things even better. Level 8 is a good game and words of praise often appear for Mike Austin for organizing it in all at times, somewhat of a business conversation.

This year well, I'm sure the bigger and better, and good to be there. I probably be there, and perhaps I might see one or two of you as well. Not too much that a special little dragon, but interesting for an adventure reviewer. And that's that! Bye for this month.

# How many monkeys in a coconut?

*Gordon Lee has a lovely bunch of puzzles*

FROM now on, on the page we present an assortment of miscellaneous problems which can be solved by a computer approach. This month, there is a problem which has been told us by readers, and which other Dragon users will, no doubt find good practice in programming.

First, from Paul Weardon at Wotton under Edge, comes a familiar alphamagic

CRACKS  
POWERS  
DANGER

This is an addition sum in which the digits 1 to 9 have to be substituted for the letters (different letters represent different digits, zero is not used). Although the puzzle itself dates from pre-computer times, Paul suggests a programming approach, especially as the letters include those in the word Dragon!

Attention of the Dragon connection: whether one of an alphamagic problem which was one of our competition questions a couple of years ago, and which more recent readers may find it tickle.

DRAGON = ..  
USEN

In this alphamagic, the recalled the decision is if we-digit numbers which two digits may or may not be alike. If this value is coded and the digits of this code

replaced by the appropriate letters from DRAGON, then the result is a familiar English word.

Another problem which can be readily solved by computer is the puzzle of the Monkey and the Coconuts. This has been suggested by David Ingrams of Northampton.

Five sailors are marooned on a desert island. They had collected some coconuts when they agreed to share the following morning. During the night, the first man woke and, fearing he himself might be cheated out of his share of the coconuts, decided to claim his share while the other men were still asleep. Dividing the pile of coconuts into equal piles, he found that the last coconut (a leftover) gave him the monkey. Having no share, he piled the remaining four piles together and went back to sleep. Each of the other four men woke in turn and decided on the same course of action. Each time there was one nut remaining (the monkey), which was given to that monkey. The following day they all woke and were able to divide the remaining coconuts exactly between them. Can you say what is the smallest number of coconuts that must have been present at the start? An adult now problem asks for the initial number, 1, when making the final division. The following morning there was one coconut leftover which was given to the monkey of course!

This subject of consecutive was of interest to a couple of readers, A. Radford of

Northwick writes that there are just four eight-digit perfect squares such that the first three digits are the same as the last three digits and are in the same order. Can you find them?

Eight-digit squares are also discussed by Tom Danton of South Horwold who says:

1) Find any eight-digit squares in which the first three digits are the same as the last three digits just one more than the number formed from the last four. For example, 58476544 except that here that number is not a perfect square.

2) Repeat the above, except that this time the last four digits should be one less than the first four.

Finally here is another problem from Paul Weardon, this time relating to the digits 1 to 9 in the order that they appear in a pocket calculator.

769  
456  
123

The problem requires you to find sets of four prime numbers as follows: First select five different digits so as to make a three digit number say 1, 2, and 6 to make 126. Now, to get a prime, form a number by the positions of these keys, and then rotate the pattern three times 90-degrees each time, and note the three three-digit numbers obtained at each turn in the





